CLAIMS

What is claimed:

1. A reaction system for producing a polymer comprising:

a) a polyisocyanate composition;

b) a polyfunctional isocyanate reactive composition;

c) an internal mold release composition, said internal mold release composition containing:

i) a fatty polyester, and

ii) a fatty acid which is different from the fatty polyester;

d) a poly(dimethylsiloxane)-polyoxyethylene surfactant; and optionally

e) a catalyst suitable for promoting a polymer-forming reaction between the polyisocyanate composition and the polyfunctional isocyanate reactive composition;

wherein the polyisocyanate composition and the polyfunctional isocyanate reactive composition are present in proportions suitable for the formation of a polymer; and

wherein the poly(dimethylsiloxane)-polyoxyethylene surfactant is essentially free of oxyalkylene units derived from alkylene oxides other than ethylene oxide and is present in the reaction system in an amount such that the poly(dimethylsiloxane)-polyoxyethylene surfactant contributes more than 0.006 moles of EO per 100g of the polymer derived from the reaction system.

2. The reaction system of claim 1 wherein the poly(dimethylsiloxane)-polyoxyethylene surfactant has the following formula:

$(CH_3)_3Si\text{-}O\text{-}[(CH_3)_2Si\text{-}O\text{-}]_n\text{-}[CH_3\text{-}Si(R)\text{-}O\text{-}]_m\text{-}Si(CH_3)_3$

wherein,

R= $-(CH_2)_3-O-[EO]_x-R'$;

R' is H; C_1 to C_{20} alkyl; or C_6 to C_{25} aryl;

x is a number from greater than 1 up to about 24;

m is a number from 1 to about 25; and

n is a number from 0 to about 100.

3. The reaction system of claim 1 wherein the fatty polyester comprises a reaction product of:

(i) an aliphatic dicarboxylic acid;

(ii) an aliphatic polyol; and

(iii) a fatty monocarboxylic acid,

wherein the fatty monocarboxylic acid has from 12 to about 30 carbon atoms.

4. The reaction system of claim 3 wherein the fatty polyester comprises a reaction product of adipic acid, pentaerythritol, and oleic acid.

5. The reaction system of claim 1 wherein the fatty acid is an aliphatic carboxylic acid having eight or more carbon atoms.

6. The reaction system of claim 1 wherein the fatty acid comprises at least one member selected from the group consisting of oleic acid and linoleic acid.

7. The reaction system of claim 1 wherein the catalyst comprises a tertiary amine catalyst.

8. The reaction system of claim 1 wherein the polyfunctional isocyanate reactive composition comprises one or more polyols.

9. The reaction system of claim 2 wherein x is 7, m is 11, and n is 47.

10. The reaction system of claim 2 wherein R' is selected from the group consisting of H and CH_3.

11. The reaction system of claim 2 wherein R' is H.

12. The reaction system of claim 2 wherein n is greater than 0.

13. The reaction system of claim 9 wherein R' is selected from the group consisting of H and CH_3.

14. The reaction system of claim 13 wherein R' is H.

15. A fiber reinforced polymeric molding produced from the reaction system of claim 1.

16. A mat reinforced polymeric molding produced from the reaction system of claim 1.